

WHAT IS CLAIMED IS:

1. A cold cathode fluorescent flat lamp, comprising:

a first plate, having a plurality of grooves;

a second plate, disposed on the first plate, so that the grooves constitute a plurality

5 of airtight chambers;

a fluorescent substance, disposed on either part of or all of the inner walls of the airtight chambers;

a discharge gas, disposed inside the airtight chambers; and

a plurality of electrodes, disposed on both sides of the airtight chambers,

10 respectively.

2. The cold cathode fluorescent flat lamp of claim 1, wherein the first plate and the second plate are made of a material such as glass.

3. The cold cathode fluorescent flat lamp of claim 1, wherein the discharge gas comprises an inert gas.

15 4. The cold cathode fluorescent flat lamp of claim 3, wherein the inert gas comprises Xe, Ne, or Ar.

5. The cold cathode fluorescent flat lamp of claim 1, wherein the electrodes are made of a metal electrode.

20 6. The cold cathode fluorescent flat lamp of claim 5, wherein the metal electrode comprises nickel electrode, silver electrode, copper electrode, molybdenum electrode, or niobium electrode.

7. The cold cathode fluorescent flat lamp of claim 1, wherein the grooves are extended in parallel to one edge of the first plate.

8. The cold cathode fluorescent flat lamp of claim 1, wherein the grooves are extended in a direction inclined with a certain angle from one edge of the first plate.

9. The cold cathode fluorescent flat lamp of claim 1, wherein the grooves comprise either rectangle grooves or arc grooves.

5       10. The cold cathode fluorescent flat lamp of claim 1, further comprising at least one connection groove, wherein the connection groove is formed in between the grooves, so that the grooves are connected with each other.

11. The cold cathode fluorescent flat lamp of claim 10, wherein the width of the connection groove is 0.1 mm ~ 10 mm, and the depth of the connection groove is 0.1 mm  
10       ~ 5 mm.

12. The cold cathode fluorescent flat lamp of claim 1, wherein the bottom of the first plate is a reflective surface.

13. The cold cathode fluorescent flat lamp of claim 1, wherein the bottom of the second plate is a diffusion surface.

15       14. The cold cathode fluorescent flat lamp of claim 1, further comprising an impedance device, wherein the resistance device is disposed on the electrodes, and the impedance device is a resistor, a capacitor, or an inductor.

15. A cold cathode fluorescent flat lamp, comprising:

a first plate, having a plurality of first grooves;

20       a second plate, having a plurality of second grooves, wherein the second plate is disposed on the first plate, and the second grooves are corresponded to the first grooves, respectively, so that the first grooves and the second grooves constitute a plurality of airtight chambers;

a fluorescent substance, disposed on either part of or all of the inner walls of the airtight chambers;

a discharge gas, disposed inside the airtight chambers; and

a plurality of electrodes, disposed on both sides of the airtight chambers,  
5 respectively.

16. The cold cathode fluorescent flat lamp of claim 15, wherein the first plate and the second plate are made of a material such as glass.

17. The cold cathode fluorescent flat lamp of claim 15, wherein the discharge gas comprises an inert gas.

10 18. The cold cathode fluorescent flat lamp of claim 17, wherein the inert gas comprises Xe, Ne, or Ar.

19. The cold cathode fluorescent flat lamp of claim 15, wherein the electrodes are made of a metal electrode.

20. The cold cathode fluorescent flat lamp of claim 19, wherein the metal  
15 electrode comprises nickel electrode, silver electrode, copper electrode, molybdenum electrode, or niobium electrode.

21. The cold cathode fluorescent flat lamp of claim 15, wherein the first grooves and the second grooves are extended in parallel to one edge of the first plate.

22. The cold cathode fluorescent flat lamp of claim 15, wherein the first grooves  
20 and the second grooves are extended in a direction inclined with a certain angle from one edge of the first plate.

23. The cold cathode fluorescent flat lamp of claim 15, further comprising at least one connection groove, wherein the connection groove is formed in between the first grooves, so that the first grooves are connected with each other.

24. The cold cathode fluorescent flat lamp of claim 15, wherein the first grooves and the second grooves comprise either rectangle grooves or arc grooves.

25. The cold cathode fluorescent flat lamp of claim 15, further comprising at least one connection groove, wherein the connection groove is formed in between the second 5 grooves, so that the second grooves are connected with each other.

26. The cold cathode fluorescent flat lamp of claim 25, wherein the width of the connection groove is 0.1 mm ~ 10 mm, and the depth of the connection groove is 0.1 mm ~ 5 mm.

27. The cold cathode fluorescent flat lamp of claim 15, wherein the bottom of the 10 first plate is a reflective surface.

28. The cold cathode fluorescent flat lamp of claim 15, wherein the bottom of the second plate is a diffusion surface.

29. The cold cathode fluorescent flat lamp of claim 15, further comprising an impedance device, wherein the resistance device is disposed on the electrodes, and the 15 impedance device is a resistor, a capacitor, or an inductor.

30. A cold cathode fluorescent flat lamp, comprising:

a wave-type structure, having a plurality of wave peaks and a plurality of wave troughs;

a first plate, disposed on the wave troughs, so that a plurality of first airtight 20 chambers are formed between the wave-type structure and the first plate;

a second plate, disposed on the wave peaks, so that a plurality of second airtight chambers are formed between the wave-type structure and the second plate;

a fluorescent substance, disposed on either part of or all of the inner walls of the first airtight chambers and the second airtight chambers;

a discharge gas, disposed inside the first airtight chambers and the second airtight chambers; and

a plurality of electrodes, disposed on both sides of the first airtight chambers and the second airtight chambers, respectively.

5       31. The cold cathode fluorescent flat lamp of claim 30, wherein the first plate and the second plate are made of a material such as glass.

32. The cold cathode fluorescent flat lamp of claim 30, wherein the discharge gas comprises an inert gas.

10      33. The cold cathode fluorescent flat lamp of claim 32, wherein the inert gas comprises Xe, Ne, or Ar.

34. The cold cathode fluorescent flat lamp of claim 30, wherein the electrodes are made of a metal electrode.

15      35. The cold cathode fluorescent flat lamp of claim 34, wherein the metal electrode comprises nickel electrode, silver electrode, copper electrode, molybdenum electrode, or niobium electrode.

36. The cold cathode fluorescent flat lamp of claim 30, further comprising at least one connection groove, wherein the connection groove is formed on the wave-type structure, so that the first airtight chambers and the second airtight chambers are connected with each other.

20      37. The cold cathode fluorescent flat lamp of claim 36, wherein the width of the connection groove is 0.1 mm ~ 10 mm, and the depth of the connection groove is 0.1 mm ~ 5 mm.

38. The cold cathode fluorescent flat lamp of claim 30, wherein the bottom of the first plate is a reflective surface.

39. The cold cathode fluorescent flat lamp of claim 30, wherein the bottom of the second plate is a diffusion surface.

40. The cold cathode fluorescent flat lamp of claim 30, further comprising an impedance device, wherein the impedance device is disposed on the electrodes, and the  
5 impedance device is a resistor, a capacitor, or an inductor.